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cc: Russ Hrd, RPM
US EPA

**AERIAL PHOTOGRAPH SITE ANALYSIS
SOURCE AREA 7 OF THE SOUTHEAST ROCKFORD
GROUNDWATER CONTAMINATION SUPERFUND SITE
ROCKFORD, IL**

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Prepared For:
U.S. Department of Justice
Regarding DJ Case No. 90-11-3-945/1

The following report represents my best professional judgment based on the analysis of aerial photographs, maps and documents obtained to date. It is my understanding that fact discovery is continuing and that this report may be supplemented at a later date.



Mary D. Sitton

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July 21, 1945
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September 1987
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Foldout Legend of Symbols

INTRODUCTION/ASSIGNMENT

Per a request from the U.S. Department of Justice (DOJ), I have performed an analysis of historical aerial photographs covering Source Area 7 of the Southeast Rockford Groundwater Contamination Superfund Site (from hereon referred to as Area 7). Area 7 is located in Winnebago County, west of Alpine Road, north of Sandy Hollow Road, and south of a rail line.

I analyzed stereo pairs of aerial photographs¹ spanning the period from 1939 to 1998 to document potential contamination sources, drainage pathways, and onsite changes and activity. I also analyzed aerial photographs from 1939, November 1970; 1974; April 25, 1978; June 1986; and 1994; however, I did not reproduce them, as there was little significant change or activity demonstrated on those photos and the ones included in my report. My report documents disposal areas, potential contamination sources, and changes in activities (excavation, grading and filling) associated with Mr. Ekberg's past and more current ownership of the property, as well as activity noted prior to Mr. Ekberg's ownership of the property. Findings from the analysis are keyed to aerial photographs spanning the study period (see Appendix B). The following report details the findings from the analysis. Also provided with the aerial photographs are maps (contamination data and park property boundary), which can be used over any of the photographs in the report. Tic marks on the four corners of the map can be aligned with the tic marks on the four corners of the photographs to align the map(s) to the photograph.

¹ All aerial photographs and associated collateral data acquired for the preparation of the analysis are listed in the Materials Reviewed section of this report.

QUALIFICATIONS AND EXPERIENCE

I, Mary D. Sitton, am currently president of Environmental Research, Inc. (ERI), an aerial photographic analysis firm based in Linden, Virginia, which specializes in the research, acquisition, and analysis of historical aerial photographs for environmental investigations and litigation support. In this capacity, I provide analysis services on projects involving environmental remediation and investigation to a variety of federal, state, and local governments and private agencies. Prior to my involvement with ERI, I worked as an independent environmental consultant and as an onsite imagery analyst/geologist contractor for the U.S. Environmental Protection Agency's Environmental Photographic Interpretation Center (EPIC). With these various positions, I have 20 years of experience in aerial photographic research, acquisition, and analysis. The focus of my work has been on the analysis of industrial facility operations with emphasis on environmental conditions including but not limited to onsite waste management and disposal operations. I enclose as Appendix A my curriculum vitae.

Pursuant to a request by DOJ, I have obtained copies of aerial photographs of Area 7 from independent sources which I and other professionals in the field regularly rely on in acquiring historical aerial photographs, and have analyzed these photographs using various specialized techniques and training acquired over the past 20 years (see Methodology section).

I am prepared to testify at trial as to the dates and authenticity of aerial photographs and maps of Area 7 obtained from independent sources. My time is compensated at an hourly rate of \$80 for analysis work and \$100 for deposition and trial testimony.

METHODOLOGY

A search of government and commercial sources was undertaken to obtain aerial photographs spanning the period 1939 to 1998. The analysis was performed by viewing illuminated transparencies of aerial photographs through a zoom stereoscope.

Stereoscopic viewing creates a three-dimensional effect which, when combined with viewing at various magnifications, enables the analyst to identify signatures associated with different features and environmental conditions. The term "signature" refers to a combination of visible characteristics, which permit a specific object or condition to be identified on aerial photographs.

Print enlargements covering Area 7 have been reproduced to illustrate the findings from the analysis. The analyst's findings are illustrated on overlays to the print enlargements with additional comments and/or descriptions included in the accompanying text. A foldout legend is included at the back of the report to define the abbreviations and symbols annotated on the print enlargements. Due to factors inherent in the printing process and the fact that the prints are monoscopic (single frame, not stereo), they do not exhibit the level of detail that is visible in the original aerial photographs; therefore, some features identified from the aerial photographs may not be clearly discernible, or even visible, on the print enlargements presented in this report.

STATEMENT OF OPINIONS

The following opinions are based on a review of aerial photographs, maps, and documents covering Area 7, as well as my knowledge and experience. A detailed description of findings is included with the Analysis section of this report.

- Evidence of disposal was first noted on the 1951 photographs and is identified as Disposal Area 1.
- Expanded disposal was noted on the 1956 photographs within Disposal Area 1. An additional disposal area was noted on the 1956 photographs and is identified as Disposal Area 2.
- Evidence of disposal was noted within two areas of Disposal Area 1 in 1958 (identified as DA-1A and DA-1B).
- Evidence of disposal activity was noted on the 1964 photographs within Disposal Areas 1A, Disposal Area 1B and Disposal Area 2.
- An additional disposal area was noted on the 1976 photographs and is identified Disposal Area 3.
- Excavation into a prior disposal area was noted on the 1970 photographs.
- An additional disposal area was noted on the 1978 photographs and is identified as Disposal Area 4. Disposal was also noted within Disposal Area 3 in 1978.
- Evidence of disposal was noted within Disposal Areas 3 and 4 on the 1979 photographs. Evidence of disposal was also noted with Disposal Area 3 on the 1980 and 1986 photographs.
- Filling of former onsite drainage channels occurred periodically throughout the study period as a result of disposal activity, filling, and grading. New drainage channels were evident in the northeastern portion of Area 7 and north of Area 7 beginning in 1970. New drainage channels were also noted within and near Ekberg Park in 1991 and 1998 are likely the result of changes in topography related to park construction.
- Multi-toned mounded material, excavations, debris, and other features were noted from 1958 to 1998 in two areas located south of Area 7 (features varied from year to year).

AERIAL PHOTOGRAPH ANALYSIS

July 3, 1939 and July 21, 1945

No evidence of disposal activity was noted on the 1939 or the 1945 photographs. The majority of Area 7 was in use primarily as agricultural fields. Two buildings (B) were located in the eastern portion of Area 7 and are accessed by Alpine Road. Drainage channels within Area 7 extend north to a channel draining to the west.

July 25, 1951

A new building (NB) has been constructed in the eastern portion of Area 7 near Alpine Road. Unpaved access roads have been constructed in the northern and southern portions of Area 7 since 1945. Cleared areas (CA) and cleared and disturbed areas (DG) are visible along the east-west access roads in the northern portion of Area 7 in the vicinity where trees were removed since 1945. Light (LT) and multi-toned (ML) mounded material (MM) is noted within the cleared areas and disturbed areas, likely related to vegetation removal and clearing. Light-toned material (M) was also noted along drainage channels in the northwestern portion of Area 7 and may also be related to clearing of vegetation.

Disposal Area 1 (DA-1)

Multi-toned mounded material and probable debris (DB) have been disposed into and adjacent to a drainage channel located in the southwestern portion of Area 7. The material and probable debris cover a portion of the drainage channel that was visible in this area in 1945. Unpaved access roads extend into the southern end of Area 7 leading to DA-1. Linear ground scars (GS) are visible near an access road east of DA-1.

September 19, 1956

A large excavated area (EX) is visible near the center of Area 7. Approximately seven vehicles (V)(cars, small trucks) and an area of disturbed ground are located east of the excavated area.

Disposal Area 1 (DA-1)

Unpaved access roads lead into the area from the east and south. Disposal activity has increased since 1951. Additional multi-toned mounded material and debris have been disposed into and adjacent to drainage channels onsite. Staining (ST), dark-toned (DK) mounded material, and debris are visible within the eastern portion of DA-1. A fill area (FA) is noted in the northern end of DA-1.

Disposal Area 2

A new disposal area (DA-2), located northwest of the three buildings in the eastern portion of Area 7, contains light-toned mounded material. An area of disturbed ground is located south of DA-2.

May 1, 1958

The central portion of Disposal Area 1 has revegetated. Two non-contiguous disposal areas remain (DA-1A and DA-1B). In the northwest portion of Area 7, unpaved access roads lead to excavated areas. Equipment, light-toned material and excavated or disturbed areas are also visible in this location. Probable equipment is also visible within an excavated area near the center of Area 7.

An excavated area is located south of Area 7. Multi-toned mounded material is noted north of this excavated area. Unpaved access roads lead to this area from the north and south (southern access road does not appear on the print enlargement).

Disposal Area DA-1A

Unpaved access roads lead to DA-1A from the north and southeast. Additional multi-toned mounded material and debris are visible within and adjacent to the drainage channel. Dark-toned material or staining is located in the northeastern portion of DA-1A. Light toned material is visible in the eastern portion of DA-1A.

Disposal Area DA-1B

DA-1B contains multi-toned material and debris.

Disposal Area 2

Additional multi-toned material and debris have been added to DA-2 since 1956.

May 21, 1964

The excavation remains near the center of Area 7. An unpaved access road leads south from Area 7 past an excavated area containing multi-toned mounded material. An additional excavated area located south of Area 7 contains a graded area (GR) and dark-toned mounded material. Approximately nine vehicles are visible near this excavated area.

Disposal Area DA-1A

The western portion of DA-1A contains additional multi-toned mounded material and debris. Light-toned material and debris are visible in the northern portion of DA-1A. Debris and cylindrical-shaped probable containers (CT) are located in the eastern portion of DA-1A. An unpaved access road leads through and past DA-1A.

Disposal Area DA-1B

Additional multi-toned mounded material and debris have been added to DA-1B since 1958. The additional debris added has covered a portion of the drainage channel that was visible in this area in 1958.

Disposal Area 2

DA-2 contains a pit, multi-toned material and debris.

July 5, 1970

Two new buildings have been constructed in the eastern portion of Area 7 near Alpine Road. Vehicles and equipment (three dump trucks, an earthmover and two

unidentified pieces of probable equipment) are visible at the intersection of two access roads located west of the new buildings. The northern access road leads to an area of mounded material containing light-toned objects (O). Large disturbed and/or cleared areas are visible near the central portion of Area 7. A large excavated and cleared area is present in the western portion of Area 7. The southeastern portion of the excavated area cuts into an area that contained multi-toned mounded material and debris in 1956. Excavated areas and probable equipment are also visible in this vicinity. The deepest excavations in this area are approximately 12 feet deep. Liquid (LQ) is visible within an excavated area located in the eastern portion of Area 7. A ground scar is located in the northwest corner of Area 7. New homes have been constructed north of Area 7.

Light-toned mounded material and probable debris are visible within an area south of Area 7. A fill area with probable debris and probable junked vehicles are located west of this area.

Disposal Area 1A

The southern portion of DA-1A is revegetating (REV). The northern portion of DA-1A (shown within three polygons) contains vegetation (VEG), debris and cylindrical-shaped probable containers.

Disposal Area 1B and Disposal Area 2

No longer visible.

April 6, 1976

New drainage ditches are visible west of the buildings located near Alpine Road. New homes have been constructed south of DA-3 along O'Connell Street. Excavated areas (one containing liquid) are visible in the central portion of Area 7. Probable recreational (REC) tracks are visible in the southern portion of Area 7. New homes are under construction (UC) west of Area 7.

A cleared and graded area and probable staining are visible within an area south of Area 7. The activity within this area has expanded to the east since 1970. A ground-scarred area is noted to the west.

Disposal Area DA-1A

A cleared area with probable debris is visible in the western portion of DA-1A. The eastern portions of DA-1A contain vegetation, probable debris, and debris.

Disposal Area 3

A new disposal area (DA-3), containing multi-toned mounded material and debris, is visible in the eastern portion of Area 7. This area was deeply excavated in 1970. Liquid is visible in an excavated area in the western portion of DA-3. A ground scar is visible north of DA-3 at the end of a drainage channel.

April 15, 1978

The drainage channel seen west of the buildings located near Alpine Road now extends to the east-west drainage that is parallel to the railroad tracks in the northern portion of Area 7. A new drainage channel is visible northeast of the buildings. A new culvert (not annotated) and drainage ditch are visible in the northeastern portion of Area 7. Excavated areas are visible near the center of Area 7. The deepest excavations are approximately 12 feet deep. Pipes are visible in the northern portion of Area 7. Probable recreational tracks remain in the southern portion of Area 7. New homes have been constructed southeast and west of Area 7. A trench, a cleared area, and equipment are located west of Area 7 where additional new homes are under construction.

A graded fill area and graded dark-toned material are visible south of Area 7. Multi-toned mounded material and probable debris are located to the west of this area.

Disposal Area DA-1A

The western portions of DA-1A contain vegetation and debris. The eastern portion of DA-1A contains vegetation, debris, and cylindrical-shaped probable containers.

Disposal Area 3

DA-3 contains mounded material and debris.

Disposal Area 4

A new disposal area (DA-4) containing debris (coarse-textured light-toned material; light-toned, cylindrical-shaped probable containers; and dark-toned material), cut vegetation and a pit is visible near the center of Area 7.

September 26, 1979

An access road leads to the north central portion of Area 7 where equipment (probable crane) and an excavated area are visible. The probable recreational tracks remain in the southern portion of Area 7. Multi-toned mounded material is visible within a former excavated area located north of DA-4. An excavated area remains visible east of DA-4.

Disposal Area DA-1A

No longer visible.

Disposal Area 3

DA-3 contains multi-toned mounded material and probable debris.

Disposal Area 4

DA-4 contains multi-toned mounded material and probable debris.

November 21, 1980

An excavated area remains visible near the center of Area 7. Probable recreational tracks remain in the southern portion of Area 7.

Disposal Area 3

DA-3 contains multi-toned mounded material and probable debris.

Disposal Area 4

No longer visible.

April 1986

Probable debris is visible south of the buildings located near Alpine Road. A large excavated area and a fill area are visible near the center of Area 7. The fill area is in the location where an excavated area was noted in 1980. A large light-toned object is visible within a wooded area in the southern portion of Area 7. A large portion of Area 7 has been cleared and graded and the probable recreational tracks are no longer visible.

Multi-toned mounded material and probable debris are visible in an area south of Area 7. A fill area and/or disposal area is located west of the aforementioned area.

Disposal Area 3

DA-3 contains multi-toned mounded material and probable debris.

September 1987

Probable debris has been added to the area south of the buildings near Alpine Road. An excavated area containing liquid and disturbed ground is visible near the center of Area 7.

Light-toned mounded material and probable debris are visible in an area south of Area 7. Light-toned mounded material is located in an area to the west.

Disposal Area 3

DA-3 is no longer visible and the area is revegetating. Light-toned mounded material is visible near an access road.

April 16, 1988

Probable debris is visible south of the buildings near Alpine Road. A large cleared and graded area is visible in the center of Area 7. Balsam Lane has been extended into the western portion of Area 7. Light-toned mounded material is visible southeast of the cleared area. Light-toned mounded material is visible in several locations where DA-3 was previously seen.

Light-toned mounded material, a cleared area, probable debris and light and dark-toned mounded material are visible south of Area 7.

March 19, 1991

A new building has been constructed near Alpine Road. Debris is visible west of the new building. A park (Ekberg-Pine Manor Park) has been constructed in the western portion of Area 7. New drainage channels are visible in the vicinity of the park and are likely the result of changes in topography related to park construction. Two excavated areas and liquid are visible near the center of Area 7. Light-toned mounded material is visible near the end of an access road where DA-3 was previously visible.

A drainage channel is visible leading north toward Area 7 from a group of commercial/industrial buildings (not annotated) located along Alpine Road. Buildings were first noted in this area on the 1986 photographs. New buildings were constructed in this area since 1987. A graded area, an excavation with dark-toned mounded material, debris and multi-toned mounded material are visible south of Area 7.

April 5, 1998

A new building has been constructed in the northeastern portion of Area 7. A large disturbed area with multi-toned mounded material is located west of the new building. The drainage channel in this vicinity has been channelized (cleared, expanded) since 1994. A scarred and disturbed area is located near the center of Area 7. Two new drainage channels are visible in the vicinity of Ekberg Park and are likely the result of changes in topography related to park construction and grading.

Disturbed ground with mounded material is located south of Area 7.

MATERIALS REVIEWED

Southeast Rockford, Illinois

AERIAL PHOTOGRAPHS

DATE	SOURCE	SCALE	TYPE ²	MISSION	ROLL & FRAME
7-3-39	NARA ³	1:20,000	B/W	BXL	4: 8, 9
7-21-45	USGS ⁴	1:24,000	B/W	GS-BO	1: 11, 112
7-25-51	NARA	1:20,000	B/W	BXL	2H: 37, 38
9-19-56	ILDOT ⁵	1:9,600	B/W	PR-109	27, 28, 29
5-1-58	FSA ⁶	1:20,000	B/W	BXL	1V: 66, 67
5-21-64	FSA	1:20,000	B/W	BXL	1EE: 62, 63
7-5-70	FSA	1:20,000	B/W	BXL	1LL: 217, 218
11-5-70	USGS	1:20,000	B/W	VCOS	1: 298, 299, 322, 323, 324
3-25-74	ILDOT	1:9,600	B/W	R-2257	7
4-6-76	USGS	1:38,000	B/W	VEDB	1: 124, 125
4-15-78	SID ⁷	1:10,800	B/W	-	20: 187, 188, 189
4-25-78	SID	1:24,000	B/W	-	10: 389, 390
9-26-79	FSA	1:40,000	B/W	17201	179: 46, 47
11-21-80	USGS	1:58,000	CIR	NHAP-80	325: 132, 133
4-86	PM ⁸	1:36,000	B/W	-	36, 37, 38
6-2-86	USGS	1:58,000	CIR	NHAP-2	331: 124, 125
9-87	PM	1:36,000	B/W	-	4: 7, 8
4-16-88	USGS	1:40,000	CIR	NAPP	835: 125, 126
3-19-91	EPA ⁹	1:12,000	CC	91/014	91/014: 11, 12, 13
4-17-94	USGS	1:40,000	B/W	NAPPW	5775: 99, 100
4-5-98	USGS	1:40,000	B/W	10372	234, 235

² Film Type: B/W – Black & White, C – Color, CIR – Color Infrared

³ National Archives and Records Administration

⁴ U.S. Geological Survey, U.S. Department of the Interior

⁵ Illinois Department of Transportation

⁶ Farm Service Agency, U.S. Department of Agriculture

⁷ Sidwell Company, St. Charles, IL

⁸ Photomaps USA, Pinson, AL

⁹ Environmental Protection Agency

MATERIALS REVIEWED – CONT.

MAPS

Rockford – SE, Illinois, U.S. Geological Survey 1:24,000-scale topographic map

Ekberg-Pine Manor Park, Lindberg & Associates, 1"=100', (US-GE 00150)

Location Map, Appendix A

Location Map, Exhibit #13 (US 00001)

Current and Past Features, and Survey Grid, CDM, Figure 4-3, (US2070)

Location Map, 7.0 Acre Park (US 00009)

Southeast Rockford, Source Control Operable Unit, Area 7 Soil Vapor Results for VOCs, CDM Figure No. 3-8

Southeast Rockford, Source Control Operable Unit, Area 7 Total VOCs in Subsurface Soils, CDM Figure No. 3-12

Southeast Rockford, Groundwater Contamination Study, TCA in Subsurface Soils, Potential Source Area 7, CDM, Figure 4-15, 1"=150', (US2103)

DOCUMENTS

Records of Climatological Observations 1943 – 1994.

Site Analysis, Southeast Rockford, Illinois, Part 2, Volumes 1 & 2, TS-PIC-92069, August 1992.

Agreement to Purchase Land for Pine Manor Park, US 00005-00008